T E C H N I C A L M E M O R A N D U M

Utah Coal Regulatory Program

July 14, 2005

TO: Internal File

THRU: D. Wayne Hedberg, Permit Supervisor

THRU: Steve Fluke, Team Lead

FROM: David Darby, Environmental Scientist III, Hydrogeologist

RE: SITLA Muddy Lease Amendment, Canyon Fuel Company, LLC., SUFCO Mine, C/041/0002, and Task ID #2157

SUMMARY:

On February 11, 2005, the Division received an amendment to include the SITLA Muddy Tract to the Mining and Reclamation Plan (MRP) for the SUFCO Mine. The SITLA lease will add 2,134.19 acres to the existing approved permit area of 24,632.95 acres. The Permittee will not add any new surface facilities because of the SITLA leases. This memo summarizes the completeness of the Permit Application Package for the proposed lease. The requirements for geologic related information were evaluated for this review.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

Geological resource information for the Muddy Tract Lease and the rest of the Sufco Mine is supplied in Chapter 6. The permittee presents the regional setting in which the stratigraphy and structural geology of the proposed mine area are described. No igneous or metamorphic units are found in the area. The formations exposed are sedimentary (Plate 6-1 and Figure 6-1) and are mostly of Cretaceous Age. The Mancos Shale is considered the base layer. It is a very thick formation in this area and consists of massive beds of sandstone and shale. The shale layer acts as an aquitard restricting downward flow of groundwaters.

The Blackhawk Formation is the coal bearing formation in the area. On the Sufco Mine property the Blackhawk Formation varies in thickness from 70 to 830 feet, generally thickening northeastward. Three coal seams with thickness greater than five feet (the Upper Hiawatha Seam, and two other of lesser importance: the lower Hiawatha Seam and Duncan Seam) are found in the Blackhawk Formation within the mine property (Figure 6). The upper Hiawatha Seam is the only one of the three, which is minable within most of the mine property boundary. The seam has a thickness of between 9 to 18 feet over most of the property, but thins due to mid-seam parting in the southeastern portion of the property that it becomes unminable The Duncan zone may correlate with the Muddy Coal Seam, which occurs north of the SITLA lease. Plate 6-1 shows the elevation and locations of drill holes, geologic formations, coal outcrop lines the strike and dip of the beds and local faults. Plate 6-5 shows cross-sections of test borings and identifies the nature and depth of the coal seam in the area.

The mine area lies midway between the Joe's Valley-Paradixe Fault Zone to the east and the Musinia Fault zone to the west. Rock units in the mine area strike roughtly N40° E and dip 1 to 2 degrees (about 250 feet per mile) to the northwest (Plate 6-1).

Acid- and Toxic-forming Materials

The Permittee is required to determine all potentially acid-or toxic-forming strata down to and including the stratum immediate below the coal seam to be mined to determine whether reclamation can be accomplished. The Permittee states that there are no plans to remove any

overburden above the coal seam to be mined. Lithologic logs of drillholes are presented in Appendix 6-1 and chemical analyses for acid- and toxic-producing materials is presented in Appendix 6-2. The Permittee presents limited information in Section 6.2.4.3 of acid, toxic and alkaline chemical analyses of the coal to be mined in the Muddy Tract Lease area.

The information presented is based on samples from the waste rock pile and drill holes in other areas of the mine. Analyses should be presented from roof, floor and coal seam as specified in R645-301-624.320 and 624.330 for the Muddy Tract Lease area. R645-301-624 allows the Permittee to request a waiver if information is present having equal value or effect is available to the Division in a satisfactory form.

Findings:

The information provided by the Permittee is not considered adequate to meet the minimum requirements of the Geologic Resource Information Section.

R645-301- 624.200 and 624.300, The Permittee is required to submit chemical analyses of roof, floor and coal seam from areas in the Muddy Tract Lease, identifying the levels of acid-and toxic forming materials. It is suggested that the Permitted submit analyses for parameters and use recommended laboratory methods identified in Table 6 of the Utah, Department of Natural Resources- Topsoil and Overburden Guidelines, April 1988.

OPERATION PLAN

COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

The Permittee has submitted Plate 5-7 outlining the 5-year mine sequence for the Muddy Tract Lease. The map identifies a large area north of the panels that is not planned for mining. The large sand channel runs through the coal seam in the area that prevents the continuation of the panels. The Permittee should describe why it is not feasible to mine entries through the sand channel and develop panels in an east west trending direction to recover any reserves north of the sand channel.

Type and Method of Mining Operations

The Permittee will employ room and pillar and longwall mining methods. The room and pillar method will be used to drive gaterows and setup rooms for the longwall. Room and pillar

mining will be used when it is necessary to leave support pillars under stream channels or escarpments to prevent subsidence.

Findings:

The applicant has not submitted sufficient Coal Recovery information to meet the minimum requirements if the regulations.

R645-301-522, The Permittee will be required to submit information explaining why reserves cannot be mined in the northern part of the Muddy Tract Lease.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

The applicant has provided information in the MRP to show they will conduct reclamation activities on the minesite. Reclamation of the mine site will follow completion of the mining operations as required by state regulations R645-301 and R645-302 will be accomplished. The reclamation plan is discussed in detail in Section 3.5 of this permit application. All drill holes will be sealed and reclaimed as described in Section 6.50 of the PAP.

Subsidence

The Permittee has addressed subsidence and subsidence monitoring in Chapter 5. Subsidence monitoring requirements for this section have the Permittee describe the degree of subsidence so other appropriate measures can be taken to prevent material damage. The Permittee has provided maps showing both the mining plan and surface water resources, including stream, springs and ponds. The area proposed for mining should not affect Cowboy Creek, since mining will no encroach on the creek with this plan. The Permittee has not mentioned any relationship between the expected subsidence features, such as fracturing, and if any material damage could occur from fractures opening as a result of subsidence.

Findings:

The applicant has not submitted sufficient Reclamation Plan information to meet the minimum requirements of the regulations.

R645-301- 632, The Permittee should describe the location of surface fracturing from subsidence and any relationship it may have with the local fracture pattern.

RECOMMENDATIONS:

It is recommended that the geological section of the application not be approved.

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